

# Rabbit renal homografts. I. Technique for grafts to the neck

JOHN C. McDONALD, M.D.

AKIRA FUKUDA, M.D.\*

BUFFALO, N. Y.

*From the Department of Surgery, State University of New York at Buffalo, and the E. J. Meyer Memorial Hospital*

**I**n previous investigations of the rabbit's serum antibody response to homografts, skin allografts were used as the experimental model.<sup>1, 2</sup> During the course of these studies, the desirability of transplanting an organ which was immediately vascularized, and which had a readily measurable function, became apparent.

It seemed wise to continue these studies in the rabbit because it is a classic species for immunologic experimentation. Attempts were therefore made to acquire the necessary skills to homograft rabbit kidneys. Since the technique to be described evolved from considerable trial and error, it seems worthwhile to record.

The neck was chosen as the recipient site since, for studies of the unmodified response, the host must remain alive to provide subsequent serum samples. Similarly, the donor must survive, and this made the nice technique described by Nathan and co-workers<sup>3</sup> unsatisfactory, since it requires the death of the donor.

## ANESTHESIA

Intravenous pentobarbital injected via the marginal vein of the ear was used for anesthesia. This must be given quite carefully, since the anesthetic dose closely approximates the lethal dose in this species. An average of 30 mg. per kilogram was used, but this varies

substantially from one animal to the next. It is best to administer the barbiturate very slowly, stopping when the animal first loses consciousness. If further anesthesia is necessary, local infiltration with 1 percent procaine can be used.

## ANASTOMOSES

The anastomoses were performed with a vascular stapling instrument.\*

This instrument consists of two interlocking clamps. The jaws of each clamp accommodate a bushing upon which the vessel is fixed. Fig. 1 shows how the vessels are anastomosed in detail. There are several bushings, each pair designed for a vessel of a different size. Each bushing consists of two semicircular halves, each of which locks into one jaw of one clamp. The vessel to be anastomosed is brought through the center defect of the bushing, and the clamp's jaws are closed. The vessel is then folded over the rim of the defect in the bushing, as shown in the figure. When both vessels are prepared, the clamps are locked together and precisely approximate the ends of the vessels.

The figure shows that one bushing is plastic and loaded with small staples. This bushing comes preloaded and sterile and is disposable. The other bushing is metal. It is used repeatedly and serves as the anvil upon which the staples are bradded. The bradding is done by a driving lever on one of the

Supported by Public Health Service Grants No. 50-8578B and No. 50-8525B and a grant from the United Health Foundation.

Received for publication Dec. 17, 1965.

\*United Health Foundation Research Fellow.

\*American Vascular Stapler, produced by Codman & Shurtleff, Inc., Boston, Mass.